

ABSTRACT

Changes in optical properties of layered materials are measured by directing an incident wave of finite transverse dimensions toward layered materials under conditions that will produce a propagating surface mode or a waveguide mode in the layered materials. The intensity distribution is measured within the transverse beam profile of the total reflected beam. The profile shows asymmetric structure associated with the excitation of the propagating surface mode or a wave-guide mode. The index of refraction of the layered materials is modified and the reshaped intensity distribution within the transverse beam profile of the total reflected beam is again measured under the same incidence conditions. The measured intensity distributions are compared to detect differences in the indexes of refraction in the layered materials.